

CITY OF LINCOLN, NEBRASKA STANDARD SPECIFICATIONS

Chapter 7

SIDEWALKS, DRIVEWAYS, AND BIKEWAYS

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CHAPTER 7

SIDEWALKS, DRIVEWAYS, AND BIKEWAYS

7.00 GENERAL

Concrete sidewalks, driveways, and bikeways shall be constructed of the material herein specified, on an approved subgrade, in accordance with these Specifications and in conformance with the lines, grades, typical cross section and details shown on the Plan.

7.01 RELATED ITEMS SPECIFIED ELSEWHERE

Chapter 1	Pavement Construction and Reconstruction
Chapter 2	Earthwork
Chapter 10	Crushed Rock Surfacing
Chapter 11	Portland Cement Concrete

7.02 MATERIALS

A. CONCRETE

Unless otherwise specified all concrete shall be L3500 as described in Chapter 11 of these Specifications.

B. CRUSHED ROCK

Crushed Rock for bikeway surfacing shall conform to the requirements of Chapter 10 of these Specifications.

C. TIE BARS

All reinforcement bars shall meet all the requirements of "Standard Specifications Deformed & Plain Billet Steel Bars for Concrete Reinforcement", ASTM Designation A 615, Grade 40 (300) or Grade 60 (420). Bars shall be free from excess rust, scale, or other substances which prevent the bonding of the concrete to the reinforcement.

D. PREFORMED EXPANSION JOINT MATERIAL

When specified for use, expansion joint material shall conform to "Standard Specifications for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)", ASTM Designation D 1751. The joint material shall be 1 inch thick unless otherwise specified.

E. JOINT SEALER

Joint sealer shall conform to the requirements of "Concrete Joint Sealer, Hot Poured Elastic Type", ASTM Designation D 1190, shall meet or exceed the testing requirements of "Standard Specification s Test Method for Sealants and Fillers, Hot-Applied, for Joints and Cracks in Asphaltic and Portland Cement Concrete Pavement" ASTM Designation D 5329, and the flow as specified in ASTM D 5329 shall not exceed 3/4".

7.02 MATERIALS (Continued)

F. CURING COMPOUNDS

All curing compounds shall be as described in Section 3.02.G. of these Specifications.

7.03 PREPARATION OF SUBGRADE

Subgrades shall be prepared in accordance with Chapter 2 of these Specifications. To prevent the absorption of moisture from the newly deposited concrete, the subgrade shall be kept moist by light applications of water until the concrete has been placed.

No measurement or direct payment will be made for preparation of subgrade. Subgrade preparation shall be considered subsidiary to other items of work for which direct payment is made.

7.04 FORMS

A. RIGID FORMS

Upon completion and approval of the subgrade, the Contractor shall erect substantial forms of not less than the depth of the concrete to be placed. The forms shall be built straight and true and in conformance with established line and grade.

Unless otherwise shown on the plans, sidewalks and bikeways shall be constructed so that, when finished, they shall have a uniform transverse slope toward the curb of two percent (2%). Where sidewalks and bikeways are constructed adjoining the curb, the forms shall be so set that the sidewalk adjacent to the curb shall be 3/8 inch above the curb.

The forms shall not be removed until new concrete is at least twelve (12) hours old. During the operation of form removal the edges of the concrete shall be cured as hereinafter provided or, if approved by the Engineer, the exposed edges may be covered with moist earth.

B. SLIP FORMS

At the option of the Contractor and with the approval of the Engineer, slip form equipment may be used for construction of concrete sidewalks or bikeways.

Slip form equipment shall be provided with traveling side forms and screed of suitable dimensions, shapes, and strength to support the concrete for a sufficient length of time during placement to produce sidewalk of the required cross section. The equipment shall spread, consolidate and screed the freshly placed concrete in such a manner as to provide a dense and homogeneous product.

The slip form equipment shall have automatic sensor controls for both line and grade which operate from an offset control line.

No measurement or direct payment will be made for forms. The cost of forms shall be considered subsidiary to other items of work for which direct payment is made.

7.05 PLACING TIE BARS

Bars shall be placed between the concrete driveway and the pavement when a commercial drive is being constructed in conjunction with new paving. The length and location of the tie bars shall be as shown on the drawings. The reinforcement bar will act as a tie bar and shall conform to the requirements of Section 7.02(b). The tie bars shall project equally into the driveway and pavement section.

Tie bars will not be measured or paid for directly. The cost of tie bars shall be considered subsidiary to the cost of those items for which direct payment is made.

7.06 CONCRETE PLACEMENT

The concrete shall be placed in the forms on an accepted subgrade and spread in an approved manner. The concrete then shall be consolidated thoroughly, using an approved vibrating screed or in a manner approved by the Engineer. The concrete shall be so placed that no segregation of the materials occur.

A. VIBRATING

All concrete shall be thoroughly compacted by means of approved mechanical vibrators. The vibrator shall consolidate the full depth and width of the concrete to a uniform mass without segregation.

No measurement or direct payment will be made for vibrating. The cost of vibrating shall be considered subsidiary to other items of work for which direct payment is made.

B. FINISHING

The consolidation and finishing of concrete sidewalk or driveway may be accomplished by either machine or hand methods. The following requirements shall apply and all equipment used shall meet the approval of the Engineer.

1. Machine Finish

The finish machine shall be capable of placing, consolidating, striking off, shaping and float-finishing the freshly placed concrete to the desired line, grade, and thickness in one continuous passage in such a manner that a minimum of finishing by hand methods will be required. The finish machine shall be kept in good repair at all times and shall operate so as to give the desired finish over the entire surface. The finish machine shall be of a size and type capable of giving the desired results and shall be approved by the Engineer. The final finish shall be obtained with the use of a broom. Brooming shall be transverse to the line of traffic.

7.06 CONCRETE PLACEMENT (Continued)

B. FINISHING (Continued)

2. Hand Finish

The concrete shall be placed in such a manner that it can be consolidated, struck off, shaped and float finished so there will be no segregation of the concrete.

After the concrete has been deposited and spread, it shall be struck off and consolidated using vibrating screeds approved by the Engineer until the concrete is true to prescribed cross section. The vibrating screeds shall be of a design and construction suitable and adequate for the purpose required and for convenient use. They shall be designed to ride on the side forms. Screeds shall be metal or metal-shod wood and shall have sufficient strength and stiffness to retain their shape under all working conditions. The template or screed used for striking off shall be arranged so that when riding on the side form, the working edge will have an excess of concrete above grade. When finishing small and irregular areas, the concrete shall be consolidated with approved mechanical vibrators before the concrete is struck off.

Care shall be taken so the flow line of the gutter is not obstructed by the construction of driveways where they meet the curb and gutter section.

In general, the addition of superficial water to the surface of the concrete to assist in finishing operations will not be permitted. However, due to unavoidable delay in finishing or an unusual drying condition, a slight quantity of water may be added to the surface of the concrete as an aid in finishing. If it becomes necessary to sprinkle the surface with water to complete the finishing of the concrete, all mixing operations shall be discontinued immediately until the finishers catch up to a point where extra water for finishing is no longer required. If the application of water to the surface is permitted, it shall be applied in a fog spray by means of an approved orchard-type sprayer. Spray equipment which is attached to the mechanical finisher or any other paving equipment will not be permitted. The addition of superficial water to the surface of the concrete shall be at the Contractor's risk.

No measurement or direct payment will be made for placing and finishing the concrete. Placing and finishing the concrete shall be considered subsidiary to other items for which direct payment is made.

7.07 ACCESS RAMPS

Access ramps shall be constructed at the locations shown on the plans or as directed by the Engineer. All ramps shall be a minimum of 6 inches thick. All curb ramps shall be constructed with a Detectable truncated surface material in accordance with the Lincoln Standard Plans.

7.07 ACCESS RAMPS (Continued)

No separate measurement or direct payment shall be made for the construction of access ramps. Access ramps shall be measured and paid for at the appropriate unit price bid for CONCRETE SIDEWALK, 4" THICK or CONCRETE BIKEWAY, _____" THICK, and any extra cost thereof shall be considered subsidiary to this item. Detectable Truncated Surface material shall be paid for by the square foot of material in place.

7.08 JOINTS

A. CONTRACTION JOINTS

Before finishing the wearing surface, the concrete shall be jointed by cutting with a power driven saw to a minimum depth of one-fourth the slab thickness. Sidewalks and Bikeways shall be jointed at intervals approximating the design width and as square as possible. Driveways shall be jointed as indicated on the plans or as directed by the Engineer.

B. EXPANSION JOINTS

A 1 inch expansion joint shall be placed the full thickness of the sidewalks, driveways, or bikeways at the locations shown on the drawings. The joints shall be constructed of preformed non-extruding, bituminous impregnated joint material. All edges of expansion joints in new concrete shall be finished with a tool having a minimum radius of 3/8 inch. Where replacement sidewalks or driveways are being constructed, expansion material shall be placed at the appropriate locations, irrespective of whether such material was present in the sidewalks, driveways, or bikeways which were removed.

C. JOINT SEALING

Expansion joints and joints in commercial drives shall be sealed as provided in Section 3.07, Paragraph D. Construction joints in sidewalks and residential driveways shall not be sealed.

No measurement or direct payment will be made for joints or joint sealing. This work shall be considered subsidiary to other items of work for which direct payment is made.

7.09 CURING AND PROTECTION

All curing and protection of concrete work shall be in accordance with Section 3.08 of these Specifications.

7.10 HOT AND COLD WEATHER CONSTRUCTION

Portland cement concrete paving work shall be accomplished only as provided in Article 1.06 of these Specifications.

7.11 SUBSTANTIAL COMPLETION

Paving construction will be considered substantially complete when it meets all of the requirements of Article 1.07 of these Specifications.

7.12 BASIS OF PAYMENT

CONCRETE SIDEWALK, 4" THICK, CONCRETE DRIVEWAY, _____ " THICK, and CONCRETE BIKEWAY, _____ " THICK that has been completed in conformance with the Plans and Specifications and accepted by the Engineer shall be measured and paid for at the contract unit price bid per square foot. Sidewalks or bikeways constructed through future driveway locations shall be constructed to the minimum driveway thickness, and shall be measured and paid for at the appropriate unit price bid for Concrete Driveway. Such payment shall be full compensation for all preparation of subgrade, forming, jointing, finishing, curing, sawing, sealing, backfilling, cleanup, materials, equipment, tools, labor and incidentals necessary to complete the work.